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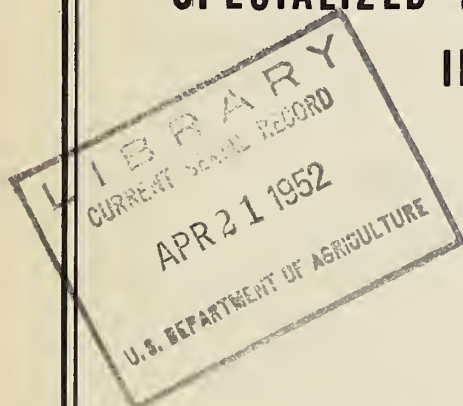
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UNITED STATES DEPARTMENT OF AGRICULTURE  
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**COSTS AND LABOR EFFICIENCY  
OF  
SPECIALIZED EGG MARKETING COOPERATIVES  
IN THE NORTHEAST**  
(Preliminary Report)



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## SUMMARY

The primary purpose of this study is to assist poultrymen to analyze in detail cost and other items of egg handling with the view toward increasing their returns and narrowing the price spread between producer and consumer. Costs, cost variations, and factors affecting costs were analyzed in order to find methods which will increase efficiency and thereby reduce costs in egg-handling plants.

The operations, costs and labor requirements of nine cooperative egg and poultry marketing cooperatives in five Northeast States were studied intensively for two 1-week periods during 1950 and 1951. One week was of relatively low and the other of relatively high egg receipts. The volume of eggs handled by these associations ranged from 101,000 to 317,500 cases in 1950, and the total for all nine associations was 1,735,500 cases.

Because the activities of each cooperative were varied in both number and relative importance, the over-all egg-handling activities were broken into 13 operations--collecting, receiving, inspecting, sizing, shell cleaning, egg breaking, candling, cartoning, packing, coopering, stacking and holding, loading out, and delivering. This breakdown makes it possible for a cooperative to compare its costs for any one operation with that of other cooperatives. This comparative analysis of the operations enables an organization to determine whether the costs for any of its operations are out of line with the costs of similar operations in other plants. Further analysis of these data, by showing causes for cost variations, will point to opportunities for reducing costs.

The cost phase of this report is directed chiefly at direct costs on a comparative operation-by-operation basis. Indirect costs by associations are given also but not by individual operations. Further analysis of indirect costs will be given in a later report.

In addition to costs as such, data are given on case output per man-hour of labor, by operations for each association.

The 45 major tables in this report cover chiefly direct labor costs by operations, costs of packing materials, trucking costs, indirect costs, and output per man-hour by operations. Averages and ranges (low and high) are given in most of the tables.

The preliminary analysis reveals a wide variation in direct per unit costs for most of the 13 operations among the 9 plants studied. To illustrate, the direct labor cost for candling varied from 29.6 to 65.7 cents per case for the week of low receipts. For cartoning, it ranged from 22.0 to 65.5 cents. Likewise, output per man-hour varied widely. The case output per man-hour for cartoning varied from 1.5 to 3.8 cases during the week of low receipts. In other words, cartoning was 2 1/2 times as time-consuming at one plant as at another. Similarly, wide variations in both direct costs and output per man-hour occurred in each operation.



For 11 operations (shell cleaning and egg breaking not included) the average of the high direct labor costs was 3.9 times the average of the low direct labor costs on a per unit basis. Likewise, for the same 11 operations, the average of the high per man-hour outputs was 3.8 times the average of the low per man-hour outputs.

On the basis of the number of cases received, indirect costs ranged from 21.9 to 64.7 cents per case for the 9 associations for the low receipts week. The number of operations to which the indirect costs applied and the volume of eggs handled in each operation, varied among associations and for this reason total indirect costs are not comparable.

The total of all costs, direct and indirect, of handling eggs averaged 4.1 cents per dozen for wholesale graded eggs, packed in cases, at 6 associations, and 7.5 cents per dozen for consumer graded eggs, in cartons and packed in cases, at 8 associations.

Egg-handling organizations, not included in this study, both cooperative and others, may want to compare the cost information presented in this report with costs of their own operations. Before doing this, however, an analysis of their operations of a similar nature should be made either by or for them so that the information will be comparable. It is especially important that the division, by operations, be the same and that they use the same cost methods and analysis. In this way, costs and factors affecting costs can be determined and explained and valid comparisons made with the information given in this report. This should assist operators to take progressive and remedial action in operations in which costs appear to be out-of-line, thereby increasing egg-handling efficiency and decreasing costs.

COSTS AND LABOR EFFICIENCY  
OF  
SPECIALIZED EGG MARKETING COOPERATIVES  
IN THE NORTHEAST

(Preliminary Report)

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The costs of handling eggs vary considerably among marketing agencies. Some have unduly high costs while others have relatively low costs. The low costs of some operators may serve as goals or yardsticks for those having high costs.

Cooperatives interested in reducing costs have asked that studies be made to assist them in increasing their efficiency. The Northeastern Poultry Producers Council's Division of Cooperatives passed a resolution at its 1949 Business Management Conference, asking the Farm Credit Administration to make a careful analysis of cartoning and candling costs and operations including representative Northeast organizations. The relatively wide spread between producer and consumer prices of eggs offers a possibility of reducing handling, processing, and marketing costs. During 1950 producers received 70 cents of the consumer's dollar spent for eggs. The 30 cents remaining went for marketing costs.<sup>1</sup>

A program to reduce egg handling and processing costs might be conducted somewhat as follows. An examination of activity or functional costs must first be made. Average or yardstick unit costs or outputs for each function can then be set up and a comparison made of the average with individual costs and outputs. The variations can then be analyzed in order to determine factors responsible for them and remedial action taken.

<sup>1</sup>Bureau of Agricultural Economics.

Note: The authors express their appreciation to the managers and employees of the nine associations studied for their splendid cooperation and willing assistance, and to the following members of the Cooperative Research and Service Division: George J. Waas for counsel on accounting procedure; Guy A. Peterson and Walter K. Davis for assistance with field work; the Statistical Section for statistical assistance; and Mrs. Rachel G. Beattie for assistance in preparing the report.

Large savings can often be made by improving facilities and equipment and methods and techniques of plant and office operation. In cooperative operations, such cost reductions are of direct benefit to the egg producer with possibly some of the benefits passed on to the consuming public. It is toward these improvements and benefits that this study is directed.

This study, of nine farmers' cooperatives in the Northeast,<sup>2</sup> covers: (1) Direct costs of handling eggs by specific operations, (2) indirect costs of handling eggs by specific operations, (3) labor efficiency in terms of output per man-hour, (4) operating methods and plant layout and equipment, and (5) factors affecting costs. Related studies are planned to apply, test, and measure, in pilot plants and under actual field and operating conditions, the findings of this study.

This preliminary report covers briefly (1) and (3) of the above. Phase (2) is covered in part in that indirect cost figures are shown in total only - and not by specific operations. Only limited analysis and discussion of the data are given, but it is hoped that egg-handling organizations, both cooperative and others, will benefit from these summary data pending completion of the full analysis.

The purpose of this report is to enable cooperatives and other organizations to compare their costs and labor efficiency. Most of the cost and labor output tables, in addition to giving figures for each cooperative, give the average and range (low and high) in costs.

As the study and analysis progresses additional reports will be published. One report will cover a comprehensive analysis by factors involved of the current plant cost data in which indirect costs will be classified by specified operations. Another will cover the costs of collecting eggs by trucks from farms at a selected number of associations. It is planned also to follow up with one or more reports as the pilot plant study develops.

## PLAN AND PROCEDURE OF STUDY

### ORGANIZATIONS SELECTED

Nine farmers' cooperatives handling eggs at country points were selected for the study rather than chosen at random. These associations were selected because they were: (1) Doing an outstanding job in their areas, (2) either candling, cartoning, or inspecting a large portion of

<sup>2</sup>A more restricted study of costs of 16 egg-handling cooperatives of several types in 7 North Central States is being made concurrently by the authors as a part of a Research and Marketing Act project.



eggs received, (3) handling relatively large volumes compared with other associations in their areas, and (4) willing to cooperate in a detailed cost study.

Had all additional cooperatives in the area handling eggs been covered in the study, there would be greater variations in costs and efficiency than among the associations selected, and the causes for these greater variations would be emphasized. However, wide variations are prominent even among the more efficient associations. Furthermore, by including associations in the upper bracket of efficiency, a larger number of factors, which contribute to greater efficiency, can be pointed out positively rather than pointing out negatively fewer factors which cause inefficiency.

Each association has been given a code letter as the information and data were obtained on a confidential basis with the names or addresses of the cooperating associations not to be divulged.

#### Location, Type, and Size

The selection of the associations was influenced also by their location, type, and products handled.

In order to scatter the sample geographically, the cooperatives were selected from five States: Three in Pennsylvania, two each in Connecticut and New Jersey, and one each in Massachusetts and New Hampshire.

The nine cooperatives covered are of the specialized egg and poultry-marketing type. That is, the chief commodities handled are poultry products. All, except one, of the cooperatives are of the pool type. The exception is an auction association. However, six of the eight pool associations formerly operated as auctions.

Some associations engaging also in operations other than egg-marketing were included as diversity of products handled might be a factor affecting the costs and efficiency of egg handling. One association handled eggs only, three handled eggs and poultry, two handled eggs and farm supplies, and three handled eggs and poultry and also rendered such services as marketing livestock or fruits and vegetables and providing cold storage lockers.

The nine cooperatives included in the study received a total of 1,735,500 cases of eggs, or an average of 192,833 cases an association, during their fiscal years ended in 1950. The lowest volume was 101,000 cases and the highest 317,500. Total business, including sales of other products as well as eggs, ranged from \$1,583,000 to \$6,903,000, averaging \$3,403,359. Sales of eggs ranged from 52 to 100 percent of the total business and averaged 77 percent.

The volumes of eggs received and gross sales of the nine associations, by groups, according to products handled, for fiscal years ended in 1950, were as follows:

Associations handling	Number of associations	Cases of eggs received	Value of all sales
Eggs and poultry-----	3	402,078	\$6,141,849
Eggs, poultry, and other-----	3	867,381	17,637,804
Eggs and farm supplies-----	2	273,564	4,068,522
Eggs only-----	1	192,477	2,782,056
Total-----	9	1,735,500	\$30,630,231
Average-----		192,833	\$3,403,359

#### PERIOD OF STUDY

This study is based upon information and statistics obtained by studying the 9 associations for two periods of 1 week each - one at a period of relatively low seasonal receipts of eggs and the other at a period of relatively high seasonal receipts. These periods are referred to throughout the report as the "low receipts week" and the "high receipts week." The reason for taking two such sample weeks was to determine at each cooperative the effect of egg volume on costs and on case output per man-hour. Averages for the two weeks - not weekly averages for the entire calendar or fiscal year - for each association are given in the tables of the report.

Obviously, it was not possible to study currently each cooperative during the weeks which not until later proved to be those of the lowest and highest receipts. The figures given in table 1 show the relationship of the volume for each of the 2 weeks studied to that of the weekly average for the year. Because they did not follow their former seasonal pattern of egg receipts, associations T and Y actually had higher percentages of their average weekly receipts during the normally low receipts week than for the normally high receipts week.<sup>3</sup> The average of the 9 associations' receipts during the low receipts week was 95 percent of the yearly weekly average and 106 percent during the high receipts week.

The two 1-week periods of operations studied may be considered short periods for an intensive study of costs and labor output relationships. However, due to time and personnel limitations, it was decided to obtain the data over a short period of time on a relatively large number of associations rather than cover a few associations more intensely over a longer period of time. Comparable information and data were thus

<sup>3</sup>Because in most instances the first visit to each cooperative covered the "low receipts week" and many costs had increased before the second visit, it was not feasible to reverse the weeks for associations T and Y.



Table 1. - Egg receipts during two selected weeks compared with average weekly receipts for the year, 9 Northeastern associations 1950-51

Association	Receipts for 12-month period <sup>1</sup>		Receipts for each week of study		Percentage of weekly average for year	
	Total	Weekly average	Low period week	High period week	Low period week	High period week
	Cases				Percent	
Q-----	172,139	3,310	3,312	3,393	100	102
R-----	149,212	2,870	2,082	2,704	73	94
S-----	310,692	5,975	6,217	6,361	104	106
T-----	113,665	2,186	2,241	1,876	103	86
U-----	126,654	2,436	2,268	2,922	93	120
V-----	194,073	3,732	3,796	4,253	102	114
W-----	94,814	1,823	1,325	2,170	73	119
X-----	325,727	6,264	6,247	7,109	100	113
Y-----	231,279	4,448	4,766	4,419	107	99
Average-----	190,917	3,672	3,584	3,912	95	106
Range:						
Low-----	94,814	1,823	1,325	1,876	73	86
High-----	325,727	6,264	6,247	7,109	107	120

<sup>1</sup>The 12 months selected embraced the 52 weeks ended with the end of the second week of study.

obtained from a larger number of associations relative to plant and office operating procedures, layout, and design of buildings and equipment and other factors that affect efficiency.

#### COMPARATIVE COST BASIS

Because the number of services and the proportion of each service rendered vary considerably among organizations, it is necessary to show, on a comparable basis, costs and labor outputs by individual operations, services, functions or jobs. For example, and as shown in table 2, associations T and X performed the same number of services or operations but not necessarily the same services or operations and the portion of egg receipts on which each service was rendered varied widely as follows:

Operation	Percentage of egg receipts serviced	
	Association T	Association X
Collecting-----	55	18
Inspecting-----	0	100
Candling-----	29	3
Cartoning-----	88	1
Packing-----	88	1
Coopering-----	5	77
Delivering-----	74	0

Table 2. - *Direct labor cost of handling eggs and egg volume, by operations, 2 Northeastern associations, one week period of high receipts, 1950-51*

Operation	Direct labor costs		Handled in each operation			
	Cents per case		Cases		Percent of total eggs received	
	Assn. T	Assn. X	Assn. T	Assn. X	Assn. T	Assn. X
Collecting-----	12.1	1--	1,036	<sup>1</sup> 1,267	55	18
Receiving-----	3.4	2.0	1,876	7,109	100	100
Inspecting-----	0.0	2.4	0	7,109	0	100
Sizing-----	0.0	50.1	0	120	0	2
Candling-----	54.6	61.8	549	220	29	3
Cartoning-----	51.8	69.6	1,642	42	88	1
Packing-----	10.0	9.2	1,642	42	88	1
Coopering-----	6.6	11.7	100	5,500	5	77
Stacking and holding-----	2.8	2.1	2,191	7,109	<sup>2</sup> 117	100
Loading out-----	2.4	2.0	2,054	7,099	<sup>2</sup> 109	100
Delivering-----	19.4	0.0	1,391	0	74	0

<sup>1</sup>It was not possible to obtain the direct labor cost separate from total collecting cost for eggs collected by contract truckers. See table 44 for total collecting cost by contract truckers.

<sup>2</sup>Exceeds 100 percent because some eggs were on hand at beginning of week.

Comparisons of over-all or total association costs among plants performing different functions or functions in different proportions are meaningless in judging relative efficiency.

The results of a study published in 1939 on non-auction cooperative associations in the 13 Northeastern States<sup>4</sup> showed that the handling charge to the producer (roughly equal to costs) ranged from zero at one bargaining association to \$1.50 per case of eggs at one pooling association. This study showed a definite relationship between the per unit cost of operating and the number and type of services rendered. For instance, the relative operating cost of two pool-type associations was reflected in the relative amount of candling and cartoning done. The one association, cartoning from 60 to 90 percent of its receipts and candling only the balance, had operating costs of \$1.10 per case of eggs received. The other association, selling a portion of its receipts during surplus seasons not fully candled, and cartoning only 5 percent of its eggs, had a cost of 70 cents per case of eggs received. The difference in the two cost figures is closely related to the proportion and type of services rendered.

#### Functions Covered

The basis for a comparative functional cost analysis is a thorough knowledge of the activities carried on by each cooperative so that a functional classification of these activities can be made. Furthermore, it is essential that each function be sufficiently definite and set

<sup>4</sup>Scanlan, John J. and Lennartson, Roy W., Preliminary Report on Study of Non-Auction Cooperative Associations Marketing Eggs and Poultry in the 13 Northeastern States, Farm Credit Admin., mimeograph, August 31, 1939.



forth in detail by elements that the work performed in any function will be the same for all associations studied - although minor differences may still exist. This relative sameness of function facilitates comparisons. It does not, however, explain the causes for cost variations. It merely narrows the operation down so that the number of variables is reduced and the operations under comparison have as much sameness as practicable for the purpose of the study.

Because associations perform different services in varying proportions, it is necessary to break costs and labor outputs down into operations or functions. In this study, the handling of eggs through country plants is broken down into as many as 13 separate and distinct plant operations. These are: Collecting, receiving, inspecting, sizing, shell cleaning, egg breaking, candling, cartoning, packing, coopering, stacking and holding, loading out, and delivering.<sup>5</sup> Obviously not all associations engaged in all these plant operations.

In order to make the costs and labor outputs as comparable as possible among the 9 associations studied, it was necessary to determine where each operation started and ended. This was done in the case of labor by including in each operation the pertinent labor elements as listed below.

Labor elements included in each operation:

- |   |  |
|---|--|
| <p>1. <u>Collecting (hauling to plant; truck personnel only):</u><br/>           Loading truck with empty cases<br/>           Driving truck<br/>           Loading truck at farms<br/>           Making out producer and route records<br/>           Unloading or helping unload</p>                                      | <p>3. <u>Inspecting (wholesale grading):</u><br/>           Moving eggs to inspectors<br/>           Removing case covers<br/>           Candling desired sample<br/>           Returning eggs to case<br/>           Replacing case covers<br/>           Weighing before or after inspecting<br/>           Removing inspected cases<br/>           Recording and marking inspection results</p> |
| <p>2. <u>Receiving (plant labor):</u><br/>           Unloading or helping hauler unload<br/>           Moving eggs into plant<br/>           Sorting cases<br/>           Recording receipts<br/>           Weighing in cases<br/>           Stacking or disposing of unloaded cases<br/>           Loading empty cases</p> | <p>4. <u>Sizing (by machine at plant when separate from candling):</u><br/>           Moving eggs to sizer<br/>           Removing case covers<br/>           Placing eggs on machine<br/>           Placing sized eggs in cases<br/>           Replacing case covers<br/>           Removing sized cases</p>  |

<sup>5</sup>Shell treating is an operation also but, since it was not done in any of the plants during the two periods of study, no data for this operation were obtained in this study.

5. Egg cleaning:  
Hauling to cleaner  
Buffing operations  
Washing operations  
Removal from cleaning operations
6. Egg breaking:  
Hauling to breaking room  
Breaking operation  
Operation of mixer, pump, etc.  
Filling and covering cans  
Putting cans in refrigerator  
Making out breaking records  
Cleaning equipment and room  
Repair and maintenance of equipment
7. Candling (loose to case):<sup>6</sup>  
Moving eggs to candlers  
Removing case covers  
Obtaining and readying empty cases  
Taking eggs off sizing machine  
Candling operation  
Putting eggs in cases  
Recording candling results  
Replacing case covers  
Removing cases  
Weighing after candling  
Stamping candled case
8. Cartoning (candling to cartons):<sup>6</sup>  
Moving eggs to candlers  
Removing case covers  
Obtaining and setting up cartons  
Taking eggs off sizing machine  
Candling operation  
Putting eggs in cartons  
Closing cartons  
Recording candling results  
Marking, sealing, and labeling cartons  
Removing cartoned cases
9. Packing (cartoned eggs):  
Stamping, labeling, or marking cartoned cases
- Sealing cartoned cases  
Obtaining and readying empty cases  
Inserting flats  
Putting cartons in case  
Closing cases  
Stacking packed cases for removal to holding place
10. Coopering (including storing empty cases):  
Obtaining shook or used cases  
Making or setting up new cases  
Repairing used cases  
Putting flats and fillers in cases  
Putting labels on when coopering  
Removing coopered cases  
Stacking coopered cases
11. Stacking and holding (in plant):  
Stacking (when several high and separate from removing)  
Moving of cases to holding place  
Sorting cases  
Restacking cases  
Weighing and labeling cases
12. Loading out:  
Hauling to trucks or railroad cars  
Helping to load  
Making out shipping records, bills of lading, and delivery instructions
13. Delivering (hauling to buyers; truck personnel only):  
Loading truck  
Driving truck  
Unloading eggs  
Making records of collections

<sup>6</sup>Per unit labor cost for candling and for cartoning is based upon the actual case output rather than case input. For example, if 100 cases, of which 15 percent were rejects, went to the cartoning operation, the cost and volumes were allocated based on 85 cases cartoned and 15 cases candled. In some plants all eggs were candled and packed loose in cases. Later a portion of the candled eggs were transferred into cartons. In these instances, cartoning cost was determined by allocating the proportionate share of the total candling cost to cartoning based upon output and then adding the transfer and other pertinent costs.

## HOW DATA WERE OBTAINED

During each of the two 1-week periods studied information was obtained relative to (1) direct costs, (2) indirect costs, and (3) related facts and data.

### Direct Costs

Data procured relative to direct costs were direct labor, packing and processing materials, truck operating and contract hauling, and other direct costs.

All costs incurred for direct labor were determined for the weeks under study. These include wages and salaries for regular and overtime work and additional costs associated therewith, such as Federal old age benefits, unemployment insurance, workmen's compensation insurance, bonuses, pensions, and hospital insurance. After the labor cost for each employee was determined, his time and wages were charged to the operation in which he worked. When he did services pertaining to more than one operation, his wages were allocated among operations on a time basis.

All costs incurred for packing materials were determined by the type of egg packs used. These are: (1) 30-dozen loose or case pack, (2) 30-dozen or equivalent cartoned pack, and (3) liquid egg pack.

The most important materials are case shells, flats and fillers, case labels, gummed tape, case tags, cartons, carton seals, and cans, lids, and parchment paper for liquid eggs. In instances where both new and used materials were used it was necessary to determine the proportion of each in order to calculate the actual unit cost incurred.

All costs incurred for operating association trucks and the charges for contract trucking were obtained.

The other direct costs incurred were service fees for Federal inspection and grading and royalties on machines for setting up and closing cartons.

### Indirect or Overhead Costs

Administrative, supervisory, and other indirect or overhead salary-labor costs for the specific week under study were determined in the same manner as direct labor. Indirect expenses, other than indirect labor costs, were obtained from the audit report for the latest fiscal year for each association. These annual data were then calculated on a weekly basis and the weekly average applied to current operations. In other words, indirect cost figures, excluding indirect labor, represent data for the fiscal year preceding the week of study. This was necessary since indirect cost information was not currently available for the weeks under study. Also, annual indirect costs in total were found to vary little from year to year for any individual association. They are,



therefore, considered sufficiently accurate and reliable for this analysis. Furthermore, such data are treated uniformly for the nine associations.

Indirect unit costs were arrived at by applying the number of cases received during each week of study. In this report, these costs have not been allocated to individual operations as direct labor costs have been. It should be pointed out here that a comparison of the per unit indirect costs among plants determined by the total amount of the indirect costs divided by the volume of eggs received or otherwise handled, has little meaning because the number of services rendered and the relative volume of eggs handled in each operation vary widely as previously mentioned.

Indirect labor costs include the salaries or wages of the manager, office help, salesmen, fieldmen, janitors, night watchmen, repair and maintenance employees, and plant foremen. When the work of some employees was both direct and indirect, their labor costs were divided accordingly.

Indirect costs, other than labor, include the following expense items:

Plant:

Heat  
Light, power, and water  
General insurance  
Real estate and personal  
property taxes  
Maintenance and repair  
Plant supplies (general)  
Depreciation:  
Buildings  
Plant equipment  
Miscellaneous

Non-plant:

Office supplies, stationery, and  
printing  
Postage  
Telephone and telegraph  
Advertising  
Bad debts  
Interest  
Bank service  
Auditing and legal  
Travel  
Automobile  
Directors' expense  
Annual meeting expense  
Educational expense  
Dues and subscriptions  
Contributions and donations  
Depreciation:  
Furniture and fixtures  
Automobile  
Miscellaneous

As stated above, several of the associations marketed farm products other than eggs and some handled farm supplies. In such instances, it



was necessary to allocate, when applicable, the proper portion of each indirect expense item to the egg department. Some association records provided this allocation. Even when association records showed cost allocation to the egg department, modifications were made in some instances because it was necessary to treat individual expense allocations uniformly for all associations.

### Other Information

Other than cost figures were procured during each week of study and will be used primarily in phases 4 and 5 of this study.<sup>7</sup> They will help explain costs, factors affecting costs, and labor efficiency. For the most part this information includes labor rates for regular and overtime work, amount of overtime, quality of eggs candled and cartoned, grading standards used, number and type of jobs performed by candlers, percentage of eggs sized on farms before reaching the plant, types of plant equipment used, plant and equipment layout, flow of eggs through the plant, volume of eggs handled in relation to capacity, length of farm routes, and frequency of farm pick-ups.

### COSTS

Cost information covers (1) total direct and indirect costs of operations, (2) direct unit costs of handling eggs by individual plant operations, (3) indirect unit costs by associations, and (4) a discussion of the application of the cost data.

Data on necessary margins or mark-ups on proceeds from sale of eggs or on prices or payments to producers are not included in this study. Determining unit payments to producers or necessary selling prices are not objectives of this study. Obviously, however, handling costs are important factors in determining purchase and sales prices.

### TOTAL COSTS

The aggregate cost of handling eggs through the 9 plants for the week of low receipts was \$39,679 and \$47,161 for the week of high receipts (table 3). For the low receipts week direct costs constituted an average of 72.4 percent of the total and indirect costs 27.6 percent. For the high receipts week these percentages were 75.6 and 24.4 respectively.

Total labor cost, both direct and indirect, accounted for more than 40 percent of the aggregate cost. Packing materials was the next most important single cost item, accounting for about one-third of the total cost in each weekly period.

Total per unit costs are discussed under "Application of Cost Data," page 24.

<sup>7</sup>See page 2 for phases of study.

Table 3. - *Total direct and indirect costs and percentages for handling eggs at 9 Northeastern associations, two 1-week periods, 1950-51*

Item	Low receipts week	High receipts week	Average	Low receipts week	High receipts week	Average
				Percent		
Direct costs:						
Labor-----	\$10,624.54	\$12,265.84	\$11,445.19	26.8	26.0	26.3
Packing materials <sup>1</sup> --	12,905.48	16,095.50	14,500.49	32.5	34.1	33.4
Truck <sup>2</sup> -----	5,017.16	7,140.33	6,078.75	12.7	15.1	14.0
Other <sup>3</sup> -----	171.13	164.27	167.70	.4	.4	.4
Total-----	28,718.31	35,665.94	32,192.13	72.4	75.6	74.1
Indirect costs:						
Labor-----	6,373.21	6,824.88	6,599.05	16.1	14.5	15.2
Other than labor-----	4,587.27	4,670.14	4,628.70	11.5	9.9	10.7
Total-----	10,960.48	11,495.02	11,227.75	27.6	24.4	25.9
Grand total-----	39,678.79	47,160.96	43,419.88	100.0	100.0	100.0

<sup>1</sup>Packing materials for loose, cartoned, and broken-out eggs.

<sup>2</sup>Includes operating expenses of association trucks and charges for contract trucking for collecting and delivering eggs. See also tables 44 and 45.

<sup>3</sup>Includes Federal inspection fees and royalties for cartoning equipment.

#### DIRECT COSTS

As used in this report, direct costs are costs incurred for a single operation or part of an operation and which, therefore, are separable and can be traced directly to that operation or to one or more of its constituent elements. Direct costs are variable. They vary in total amount as the product volume increases or decreases but on a per unit basis they are not affected, or are affected less than indirect costs, by changes in volume.

Direct costs were determined on a case-unit basis for (1) direct labor by individual plant operations, (2) packing materials by type of pack, (3) truck, and (4) other direct costs by operations. The cost groups are in order below.

#### Labor Costs by Plant Operations

Direct labor cost during the low receipts week by operations ranged from 1.9 cents per case for loading out eggs to 54.6 cents for egg breaking (table 4). For the high receipts week, the range was from 1.8 to 51.7 cents for the same operations.

Unit costs for labor were relatively high for sizing, egg breaking, candling, and cartoning. For example, during the low receipts week the costs of these operations, on an individual basis, ranged from 29.9 to

54.6 cents, whereas, costs for such lower cost operations as loading out and collecting ranged from only 1.9 to 11.4 cents.

The figures in table 4 show in summary form the number of cooperatives performing each operation or service, the direct labor costs per case, and the total volume of eggs concerned. These data are summarized here from supplementary tables 5 through 17 where they are shown separately for each operation and by individual cooperatives. Each supplementary table gives the average cost, range in costs (low and high), and the volume of eggs concerned in the operation. This advance report does not include an analysis of factors affecting or causing the variations in costs and other related information. This information will be given in a later report.

On a functional basis, the following 13 tables give cost figures on direct labor by operations as they occur from collecting eggs at the farm to delivering eggs to the buyer. A more complete break-down of collecting and delivering costs is given later in tables 44 and 45. Here, costs (direct labor, truck operating, and total) are shown by plants for association trucks, contract hauling, and the grand total cost. A separate more complete report on the costs of collecting eggs from farms will be issued later.

Table 4. - *Summary of average direct labor cost of handling eggs and egg volume by operations, 9 Northeastern associations, two 1-week periods, 1950-51*

Operation	Associations performing operation		Direct labor cost <sup>1</sup>			Eggs handled		
	Low receipts weeks	High receipts weeks	Low receipts weeks	High receipts weeks	Average <sup>2</sup>	Low receipts weeks	High receipts weeks	Average two weeks
			Cents per case			Cases		
Collecting--	4	4	11.4	9.7	10.6	7,370	8,343	7,857
Receiving--	9	9	2.1	2.4	2.3	32,754	35,207	33,981
Inspecting--	6	6	8.5	9.6	9.1	20,772	22,512	21,642
Sizing-----	2	2	29.9	38.5	34.2	429	338	384
Shell cleaning--	0	1	0	48.1	-	0	10	-
Egg breaking--	1	1	54.6	51.7	53.2	67	103	85
Candling---	7	7	43.3	45.7	44.5	1,738	1,882	1,810
Cartoning---	8	8	40.0	40.0	40.0	7,154	7,749	7,452
Packing-----	8	8	5.1	6.8	6.0	7,154	7,749	7,452
Coopering---	4	7	6.5	7.2	6.6	9,316	16,626	12,971
Stacking and holding	9	9	2.0	1.9	2.0	32,315	35,502	33,909
Loading out	9	9	1.9	1.8	1.9	32,263	35,422	33,843
Delivering--	5	6	9.8	10.5	10.1	9,318	10,856	10,087

<sup>1</sup>Data taken from tables 5 through 17.

<sup>2</sup>Unweighted.



Table 5. - *Collecting eggs from farms: Direct labor cost and volume of eggs collected, 4 Northeastern associations, two 1-week periods, 1950-51*<sup>1</sup>

Associations performing operation	Collecting cost			Eggs collected		
	Low receipts weeks	High receipts weeks	Average <sup>2</sup>	Low receipts weeks	High receipts weeks	Average
	<i>Cents per case</i>			<i>Cases</i>		
Q-----	10.2	9.9	10.1	1,005	1,015	1,010
R-----	11.1	7.7	9.4	1,915	2,260	2,088
T-----	14.5	12.1	13.3	1,159	1,036	1,097
V-----	9.7	9.1	9.4	3,291	4,032	3,662
Average <sup>2</sup> ----	11.4	9.7	10.6	1,842	2,086	1,964
Range: <sup>3</sup>						
Low-----	9.7	7.7	9.4	1,005	1,015	1,010
High-----	14.5	12.1	13.3	3,291	4,032	3,662

<sup>1</sup>Does not include contract hauling. See also table 44.<sup>2</sup>Unweighted average.<sup>3</sup>The range when given in tables through the report represent the lowest and highest figure of the vertical columns including the average columns.Table 6. - *Receiving eggs: Direct labor cost and volume of eggs received, 9 Northeastern associations, two 1-week periods, 1950-51*

Associations performing operation	Receiving cost			Eggs Received		
	Low receipts week	High receipts week	Average <sup>1</sup>	Low receipts week	High receipts week	Average
	<i>Cents per case</i>			<i>Cases</i>		
Q-----	1.9	1.3	1.6	3,312	3,393	3,353
R-----	2.9	5.5	4.2	2,582	2,704	2,643
S-----	.9	1.7	1.3	6,217	6,361	6,289
T-----	2.9	3.4	3.2	2,241	1,876	2,058
U-----	1.5	1.4	1.4	2,268	2,922	2,595
V-----	.5	.5	.5	3,796	4,253	4,025
W-----	2.2	1.7	2.0	1,325	2,170	1,747
X-----	1.7	2.0	1.8	6,247	7,109	6,678
Y-----	4.3	4.3	4.3	4,766	4,419	4,593
Average <sup>1</sup> ----	2.1	2.4	2.3	3,639	3,912	3,776
Range:						
Low-----	.5	.5	.5	1,325	1,876	1,747
High-----	4.3	5.5	4.3	6,247	7,109	6,678

<sup>1</sup>Unweighted average.



Table 7. - *Inspecting eggs: Direct labor cost and volume of eggs inspected, 7 Northeastern associations, two 1-week periods, 1950-51*

Associations performing operation	Inspecting cost			Eggs inspected		
	Low receipts week	High receipts week	Average <sup>1</sup>	Low receipts week	High receipts week	Average
	<i>Cents per case</i>			<i>Cases</i>		
Q-----	7.0	8.3	7.7	3,312	3,393	3,353
R-----	16.6	17.3	16.9	916	927	921
S-----	9.0	11.2	10.1	6,217	6,361	6,289
U-----	5.7	4.5	5.1	2,268	2,922	2,595
W <sup>2</sup> -----	5.6	8.6	7.1	20	20	20
X-----	2.4	2.4	2.4	6,059	7,109	6,584
Y-----	10.5	13.9	12.2	2,000	1,800	1,900
Average <sup>3</sup> ----	8.5	9.6	9.1	3,462	3,752	3,607
Range:						
Low-----	2.4	2.4	2.4	916	927	921
High-----	16.6	17.3	16.9	6,217	7,109	6,584

<sup>1</sup>Unweighted average.

<sup>2</sup>Not included in average or range because of small volume inspected.

<sup>3</sup>Unweighted average of vertical column excluding association W.

Table 8. - *Sizing eggs: Direct labor cost and volume of eggs sized, 2 Northeastern associations, two 1-week periods, 1950-51*

Associations performing operation	Sizing cost			Egg sized		
	Low receipts week	High receipts week	Average <sup>1</sup>	Low receipts week	High receipts week	Average
	<i>Cents per case</i>			<i>Cases</i>		
W-----	18.9	26.9	22.9	285	218	252
X-----	41.0	50.1	45.5	144	120	132
Average <sup>1</sup> -----	29.9	38.5	34.2	214	169	192
Range:-----						
Low-----	18.9	26.9	22.9	144	120	132
High-----	41.0	50.1	45.5	285	218	252

<sup>1</sup>Unweighted average.

Table 9. - *Shell cleaning eggs: Direct labor cost and volume of eggs cleaned, 1 Northeastern association, two 1-week periods, 1950-51*

Association performing operation	Shell cleaning cost		Eggs cleaned	
	Low receipts week	High receipts week	Low receipts week	High receipts week
	<i>Cents per case</i>		<i>Cases</i>	
W-----	-	48.1	-	10

Table 10. - *Egg breaking: Direct labor cost and volume of eggs broken, 1 Northeastern association, two 1-week periods, 1950-51*

Association performing operation	Egg breaking cost			Egg breaking volume		
	Low receipts week	High receipts week	Average <sup>1</sup>	Low receipts week	High receipts week	Average
	<i>Cents per case</i>			<i>Cases</i>		
R-----	54.6	51.7	53.2	67	103	85

<sup>1</sup>Unweighted average.

Table 11. - *Candling eggs: Direct labor cost and volume of eggs candled, 9 Northeastern associations, two 1-week periods, 1950-51*

Associations performing operation	Candling cost			Eggs candled		
	Low receipts week	High receipts week	Average <sup>1</sup>	Low receipts week	High receipts week	Average
	<i>Cents per case</i>			<i>Cases</i>		
Q-----	38.2	50.7	44.5	203	263	233
R-----	36.8	35.2	36.0	203	271	237
S-----	33.9	43.4	38.7	380	351	366
T-----	65.7	54.6	60.2	162	549	355
U <sup>2</sup> -----	22.9	24.3	23.6	11	7	9
V-----	42.9	43.3	43.1	156	103	130
W-----	30.1	38.7	34.4	36	39	37
X-----	55.8	61.8	58.8	388	220	304
Y-----	29.6	30.8	30.2	246	125	186
Average <sup>3</sup> -----	43.3	45.7	44.5	248	269	259
Range:						
Low-----	29.6	30.8	30.2	156	103	130
High-----	65.7	61.8	60.2	388	549	366

<sup>1</sup>Unweighted average.

<sup>2</sup>Not included in average because of small volume candled.

<sup>3</sup>Unweighted average of vertical column excluding associations U and W.

Table 12. - *Cartoning eggs: Direct labor cost and volume of eggs cartoned, 9 Northeastern associations, two 1-week periods, 1950-51*

Associations performing operation	Cartoning cost			Eggs cartoned		
	Low receipts week	High receipts week	Average <sup>1</sup>	Low receipts week	High receipts week	Average
	<i>Cents per case</i>			<i>Cases</i>		
Q-----	46.0	49.8	47.9	508	486	497
R-----	36.8	35.2	36.0	528	545	537
S-----	30.3	40.4	35.4	1,707	1,693	1,700
T-----	65.5	51.8	58.6	1,664	1,642	1,653
U-----	22.0	25.2	23.6	161	111	136
V-----	43.1	44.5	43.8	1,039	1,652	1,345
W <sup>2</sup> -----	41.4	43.0	42.2	481	387	434
X <sup>2</sup> -----	65.8	69.6	67.7	44	42	43
Y-----	34.9	30.0	32.5	1,066	1,233	1,150
Average <sup>3</sup> -----	40.0	40.0	40.0	894	969	932
Range:						
Low-----	22.0	25.2	23.6	161	111	136
High-----	65.5	51.8	58.6	1,707	1,693	1,700

<sup>1</sup>Unweighted average.

<sup>2</sup>Not included in average or range because of small volume cartoned.

<sup>3</sup>Unweighted average of vertical column excluding association X.

Table 13. - *Packing cartoned eggs: Direct labor cost and volume of cartoned eggs packed, 9 Northeastern associations, two 1-week periods, 1950-51*

Associations performing operation	Packing cost			Eggs packed		
	Low receipts week	High receipts week	Average <sup>1</sup>	Low receipts week	High receipts week	Average
	<i>Cents per case</i>			<i>Cases</i>		
Q-----	9.7	9.3	9.5	508	486	497
R-----	2.9	5.4	4.2	528	545	537
S-----	5.0	9.3	7.1	1,707	1,693	1,700
T-----	4.7	10.0	7.4	1,664	1,642	1,653
U-----	8.8	7.2	8.0	161	111	136
V-----	4.0	5.0	4.5	1,039	1,652	1,345
W-----	3.6	5.5	4.6	481	387	434
X <sup>2</sup> -----	16.5	9.2	12.8	44	42	43
Y-----	2.1	2.6	2.4	1,066	1,233	1,150
Average <sup>3</sup> -----	5.1	6.8	6.0	894	969	932
Range:						
Low-----	2.1	2.6	2.4	161	111	136
High-----	9.7	10.0	9.5	1,707	1,693	1,700

<sup>1</sup>Unweighted average.

<sup>2</sup>Not included in average or range because of small volume packed.

<sup>3</sup>Unweighted average of vertical column excluding association X.

Table 14 - Coopering egg cases: Direct labor cost and volume of egg cases coopered, 9 Northeastern associations, two 1-week periods, 1950-51

Associations performing operation	Coopering cost			Egg cases coopered		
	Low receipts week	High receipts week	Average <sup>1</sup>	Low receipts week	High receipts week	Average
	Cents per case			Cases		
Q-----	4.6	7.2	5.9	2,000	1,866	1,933
R <sup>2</sup> -----	-	-	-	-	-	-
S <sup>2</sup> -----	-	-	-	-	-	-
T-----	(2)	6.6	-	(2)	100	-
U-----	2.4	2.5	2.5	1,991	2,680	2,336
V-----	(2)	11.4	-	(2)	607	-
W-----	4.7	5.3	5.0	1,325	1,454	1,389
X-----	14.4	11.7	13.1	4,000	5,500	4,750
Y-----	(2)	5.9	-	(2)	4,419	-
Average <sup>3</sup> -----	6.5	7.2	6.6	2,329	2,375	2,602
Range:						
Low-----	2.4	2.5	2.5	1,325	100	1,389
High-----	14.4	11.7	13.1	4,000	5,500	4,750

<sup>1</sup>Unweighted average.

<sup>2</sup>Data not obtained.

<sup>3</sup>Unweighted average of vertical column.

Table 15. - Stacking eggs in holding rooms: Direct labor cost and volume of eggs stacked, 9 Northeastern associations, two 1-week periods, 1950-51

Associations performing operation	Stacking cost			Eggs stacked		
	Low receipts week	High receipts week	Average <sup>1</sup>	Low receipts week	High receipts week	Average
	Cents per case			Cases		
Q-----	1.1	1.7	1.4	3,271	3,393	3,332
R-----	3.1	1.1	2.1	2,114	2,704	2,409
S-----	1.4	1.7	1.6	6,217	6,361	6,289
T-----	4.2	2.8	3.5	2,241	2,191	2,216
U-----	2.2	2.4	2.3	2,266	2,922	2,594
V-----	2.4	1.1	1.7	3,796	4,253	4,025
W-----	.6	.7	.7	1,430	2,170	1,800
X-----	1.2	2.1	1.6	6,245	7,109	6,677
Y-----	2.2	3.2	2.7	4,735	4,399	4,567
Average <sup>1</sup> -----	2.0	1.9	2.0	3,591	3,945	3,768
Range:						
Low-----	.6	.7	.7	1,430	2,170	1,800
High-----	4.2	3.2	3.5	6,245	7,109	6,677

<sup>1</sup>Unweighted average.



Table 16. - *Loading out eggs: Direct labor cost and volume of loading out eggs, 9 Northeastern associations, two 1-week periods, 1950-51*

Associations performing operation	Loading out cost			Eggs loaded out		
	Low receipts week	High receipts week	Average <sup>1</sup>	Low receipts week	High receipts week	Average
	<i>Cents per case</i>			<i>Cases</i>		
Q-----	2.2	1.2	1.7	3,271	3,393	3,332
R-----	1.5	.7	1.1	2,114	2,704	2,409
S-----	1.6	2.1	1.9	6,192	6,428	6,310
T-----	2.2	2.4	2.3	2,414	2,054	2,234
U-----	2.6	2.0	2.3	2,266	2,922	2,594
V-----	1.5	1.3	1.4	3,596	4,253	3,925
W-----	1.7	1.4	1.6	1,430	2,170	1,800
X-----	2.1	2.0	2.0	6,245	7,099	6,672
Y-----	2.1	2.9	2.5	4,735	4,399	4,567
Average <sup>1</sup> -----	1.9	1.8	1.9	3,585	3,936	3,760
Range:						
Low-----	1.5	.7	1.1	1,430	2,054	1,800
High-----	2.6	2.9	2.5	6,245	7,099	6,672

<sup>1</sup>Unweighted average.

Table 17. - *Delivering eggs to buyers: Direct labor cost and volume of eggs delivered to buyers, 6 Northeastern associations, two 1-week periods, 1950-51<sup>1</sup>*

Associations performing operation	Delivering cost			Eggs delivered		
	Low receipts week	High receipts week	Average <sup>2</sup>	Low receipts week	High receipts week	Average
	<i>Cents per case</i>			<i>Cases</i>		
Q-----	4.9	6.8	5.9	1,578	1,981	1,780
R-----	10.5	10.4	10.4	1,714	2,059	1,886
S-----	(3)	11.4	-	(3)	49	-
T-----	13.3	19.4	16.4	2,000	1,391	1,696
V-----	11.6	10.7	11.1	3,596	4,318	3,957
W-----	8.6	4.3	6.5	430	1,058	744
Average <sup>4</sup> -----	9.8	10.5	10.1	1,864	1,809	2,013
Range:						
Low-----	4.9	4.3	5.9	430	49	744
High-----	13.3	19.4	16.4	3,596	4,318	3,957

<sup>1</sup>Does not include contract hauling. See also table 45.

<sup>2</sup>Unweighted average.

<sup>3</sup>Data not obtained.

<sup>4</sup>Unweighted average of vertical column.

### Packing Materials

Total cost of materials used in packing eggs per 30-dozen case or equivalent is given in table 18. These data are for 3 different packs of eggs - loose (case-packed), cartoned, and liquid.

The average cost of materials for case-packed eggs was 31.6 cents per case. For cartoned eggs in cases it was 76.1 cents per 30-dozen case. The range in materials cost was wide for both packs. The extreme range for case-packed eggs during the two 1-week periods was from 16.0 to 61.0 cents per case and for cartoned eggs from 61.7 to 97.5 cents per case.

Table 18. - *Packing materials: Total cost for loose and cartoned packed eggs, 9 Northeastern associations, two 1-week periods, 1950-51*<sup>1</sup>

Association	Loose pack			Cartoned pack		
	Low receipts week	High receipts week	Average <sup>2</sup>	Low receipts week	High receipts week	Average <sup>2</sup>
<i>Cents per 30-dozen case or equivalent</i>						
Q-----	26.3	30.8	28.6	72.6	82.3	77.5
R-----	16.0	31.4	23.7	72.2	74.5	73.4
S-----	27.6	29.4	28.5	65.3	76.7	71.0
T-----	17.9	20.9	19.4	63.1	68.6	65.9
U-----	49.5	61.0	55.2	84.5	97.5	91.0
V-----	30.5	38.6	34.6	87.2	94.9	91.0
W-----	20.5	29.6	25.0	74.2	74.4	74.3
X-----	38.1	39.7	38.9	75.8	77.3	76.6
Y-----	30.2	31.1	30.7	61.7	66.9	64.3
Average <sup>2</sup> -----	28.5	34.7	31.6	73.0	79.2	76.1
Range:						
Low-----	16.0	20.9	19.4	61.7	66.9	64.3
High-----	49.5	61.0	55.2	87.2	97.5	91.0

<sup>1</sup>Liquid pack not included in table because only one association (R) packed liquid eggs. Materials cost for this pack was 20.6, 12.8, and 16.7 cents per case for the low and high receipts week, and average, respectively.

<sup>2</sup>Unweighted average.

### Association Trucks

Expenses or costs of operating association trucks are shown by individual cooperatives in tables 44 and 45. Truck expenses for collecting eggs from farm routes averaged 9.9 and 8.6 cents per case for the weeks of low and high receipts respectively (table 44). Truck expenses for delivering eggs to buyers averaged 7.3 and 8.4 cents per case during essentially the same weeks (table 45). Obviously, this cost varied considerably among associations because of the difference in the length of routes, density of pick-up, volume of eggs collected or delivered, and other factors.

## Other Direct Costs

Other direct costs for the low and the high receipts week are given in table 19. Other direct costs are only two, (1) service fees for Federal inspection and (2) rent on machines for setting up and closing cartons.

Inspection fees were usually 15 percent of the Federal inspector's salary. They are allocated to inspecting, candling, and cartoning in proportion to the case output in each operation. Rent on cartoning machines is charged entirely to the cartoning operation.

Table 19. - *Costs of Federal inspection fee and rent for cartoning equipment by specified operations for handling eggs, 9 Northeastern associations, two 1-week periods, 1950-51*

Associations	Inspecting	Candling	Cartoning			Eggs handled		
	Federal inspection	Federal inspection	Federal inspection	Rent cartoning equipment	Total	Inspected	Candled	Cartoned
	Cents per case					Cases		
<b>Low receipts week:</b>								
Q-----	-	.7	.7	1.8	2.5	-	203	508
R-----	-	-	-	1.9	1.9	-	-	528
S-----	-	.5	.5	.7	1.2	-	380	1,707
T-----	-	1.8	1.8	.9	2.7	-	162	1,664
U-----	-	-	4.0	5.0	9.0	-	-	161
V-----	-	.8	.8	1.0	1.8	-	156	1,039
W-----	-	-	1.4	2.1	3.5	-	-	481
X <sup>1</sup> -----	-	-	-	7.9	7.9	-	-	44
Y-----	.3	.3	.3	1.0	1.3	2,000	246	1,066
Average <sup>2</sup> -----	.3	.8	1.4	1.8	3.0	2,000	229	894
Range:								
Low-----	.3	.3	.3	.7	1.2	2,000	156	161
High-----	.3	1.8	4.0	5.0	9.0	2,000	380	1,707
<b>High receipts week:</b>								
Q-----	-	.8	.8	1.7	2.5	-	263	486
R-----	-	-	-	1.9	1.9	-	-	545
S-----	-	.5	.5	.8	1.3	-	351	1,693
T-----	-	.8	.8	1.0	1.8	-	549	1,642
U-----	-	-	6.0	7.3	13.3	-	-	111
V-----	-	.5	.5	1.1	1.6	-	103	1,652
W-----	-	-	2.1	2.6	4.7	-	-	387
X <sup>1</sup> -----	-	-	-	8.2	8.2	-	-	42
Y-----	.3	.3	.3	.8	1.1	1,800	125	1,233
Average <sup>2</sup> -----	.3	.6	1.6	2.2	3.5	1,800	278	969
Range:								
Low-----	.3	.3	.3	.8	1.1	1,800	103	111
High-----	.3	.8	6.0	7.3	13.3	1,800	549	1,693

<sup>1</sup>Not included in average or range because of low volume cartoned.

<sup>2</sup>Unweighted average excluding association X.



## Total Direct Costs

In order to determine total direct costs by operations it is necessary to add, whenever pertinent, the labor, packing materials, truck, and other direct costs. This has been done by operations in a summary table (table 20) by obtaining direct labor costs from table 4, packing materials costs from table 18, truck costs from tables 44 and 45, and other direct costs from table 19. As an illustration, for the collecting operation, during the low receipts week, the average direct labor cost was 11.4 cents a case. No packing materials were used for this operation, but operating expenses of association trucks averaged 9.9 cents a case applied, making a total average direct cost of 21.3 cents a case for this operation. In the instance of the receiving operation, labor

Table 20. - Average total direct costs of operations, 9 Northeastern associations, two 1-week periods, 1950-51

Operation	Direct costs				
	Labor	Packing materials	Truck <sup>1</sup>	Other	Total
<i>Cents per case</i>					
<u>Low receipts week</u>					
Collecting-----	11.4	-	9.9	-	21.3
Receiving-----	2.1	-	-	-	2.1
Inspecting-----	8.5	28.5	-	.3	37.3
Sizing-----	29.9	-	-	-	29.9
Shell cleaning-----	-	-	-	-	-
Egg breaking-----	54.6	20.6	-	-	75.2
Candling-----	43.3	28.5	-	.8	72.6
Cartoning-----	40.0	73.0	-	3.0	116.0
Packing-----	5.1	-	-	-	5.1
Coopering-----	6.5	-	-	-	6.5
Stacking and holding--	2.0	-	-	-	2.0
Loading out-----	1.9	-	-	-	1.9
Delivering-----	9.8	-	7.3	-	17.1
<u>High receipts week</u>					
Collecting-----	9.7	-	8.6	-	18.3
Receiving-----	2.4	-	-	-	2.4
Inspecting-----	9.6	34.7	-	.3	44.6
Sizing-----	38.5	-	-	-	38.5
Shell cleaning-----	48.1	-	-	-	48.1
Egg breaking-----	51.7	12.8	-	-	64.5
Candling-----	45.7	34.7	-	.6	81.0
Cartoning-----	40.0	79.2	-	3.5	122.7
Packing-----	6.8	-	-	-	6.8
Coopering-----	7.2	-	-	-	7.2
Stacking and holding--	1.9	-	-	-	1.9
Loading out-----	1.8	-	-	-	1.8
Delivering-----	10.5	-	8.4	-	18.9

<sup>1</sup>Represents truck operating expense of association trucks. Cost of contract trucking not included. See discussion of Application of Cost Data, page 24.



constitutes the only direct cost and averaged 2.1 cents per case for the low receipts week. On the other hand, in the cartoning operation there are direct costs for labor, packing materials, Federal inspection and rental on cartoning equipment. For the low receipts week these costs averaged a total of \$1.16 a case (table 20).

### INDIRECT COSTS

Indirect costs refer to those costs which are incurred for more than one operation or for parts of more than one operation. They are, therefore, not readily separable and cannot be traced directly to an individual operation or to its constituent elements. Most indirect costs are

Table 21. - *Indirect costs: Total indirect cost and egg receipts of 9 Northeastern associations, two 1-week periods, 1950-51*

Association	Indirect cost <sup>1</sup>			Eggs received		
	Low receipts week	High receipts week	Average <sup>2</sup>	Low receipts week	High receipts week	Average
	<i>Cents per case</i>			<i>Cases</i>		
Q-----	28.39	28.12	28.26	3,312	3,393	3,353
R-----	50.09	39.67	44.88	<sup>3</sup> 2,082	2,705	2,394
S-----	28.77	29.27	29.02	6,217	6,361	6,289
T-----	64.73	76.77	70.75	2,241	1,876	2,058
U-----	31.29	28.35	29.82	2,268	2,922	2,595
V-----	44.71	42.23	43.47	3,796	4,253	4,025
W-----	50.52	34.70	42.61	1,325	2,170	1,747
X-----	25.85	23.96	24.91	6,247	7,109	6,678
Y-----	21.94	24.56	23.25	4,766	4,419	4,593
Average <sup>2</sup> -----	38.48	36.40	37.44	3,584	3,912	3,748
Range:						
Low-----	21.94	23.96	23.25	1,325	1,876	1,747
High-----	64.73	76.77	70.75	6,247	7,109	6,678

<sup>1</sup>Based on number of cases received by associations.

<sup>2</sup>Unweighted average.

<sup>3</sup>Does not include 500 cases received from other than association producers.

fixed costs and do not change in total amount when the volume of product changes but which on a per unit basis decrease when the volume increases and increase when volume is less.

Based on the number of cases received, indirect costs averaged 38.5 cents and 36.4 cents per case for the low and the high receipts week respectively of the 9 associations. These costs varied from 21.9 to 64.7 cents among associations for the low week and from 24.0 to 76.8 cents for the high receipts week (table 21).

#### PLANT AND NON-PLANT

A more detailed analysis of indirect costs for the low and the high receipts week is given in tables 22 and 23. Here indirect costs have been classified into plant and non-plant. Both categories are further classified into salaries, expenses other than salaries (not including depreciation), and depreciation. Such an analysis facilitates comparison of certain groups of indirect expenses and helps explain variations in costs. These data are shown percentagewise in tables 24 and 25. For both weekly periods, indirect plant costs averaged 28 percent of the total per unit indirect cost and non-plant costs averaged 72 percent.

#### Application of Cost Data

Direct unit costs given thus far in the report are shown by individual operations. Total over-all, both direct and indirect, plant costs on a unit basis cannot be determined on as meaningful a basis as direct costs, as explained earlier in the report. However, the over-all cost for any specific pack of eggs can be determined when the type of pack and labor, materials, truck, and other costs are known.

All associations packed one or more of five packs of eggs, as follows: (1) Consumer grade, loose, in cases, (2) consumer grade, cartoned, in cases, (3) wholesale grade, loose, in cases, (4) "not rehandled eggs" loose, in cases, and (5) liquid, in cans.

In this chapter on the application of cost data, only the total direct cost by individual associations and the average indirect cost of each pack are given. However, a procedure is presented by which each of the associations studied can quickly and easily determine its total cost for each type of pack. As shown in table 26, the average direct costs of the associations that packed each pack have been determined for one high receipts week by the addition of the pertinent costs involved. For example, in determining the total labor cost of the consumer grade, loose pack, the following costs have been considered -- collecting, 9.7 cents; receiving, 2.7 cents; candling, 45.7 cents; coopering, 8.2 cents; stacking and holding, 1.9 cents; loading out, 1.8 cents; and delivering, 11.4 cents. These give a total direct labor cost of 81.4 cents per case. To this figure packing materials cost, 31.7 cents; truck cost, 17.5 cents; and other direct costs, 0.6 cent have been added, giving

Table 22. - Indirect costs: Plant, non-plant, and total indirect costs per case of eggs received, 9 Northeastern associations, one low receipts week, 1950-51

Associa- tion	Indirect plant costs				Total	Indirect non-plant costs				Total indirect cost	
	Salaries <sup>1</sup>	Other <sup>2</sup>	Sub- total <sup>3</sup>	Deprecia- tion <sup>4</sup>		Salaries <sup>5</sup>	Other <sup>6</sup>	Sub- total <sup>3</sup>	Deprecia- tion <sup>7</sup>		Total
	Cents per case										
Q-----	2.01	2.82	4.83	1.50	6.33	14.00	7.49	21.49	.57	22.06	28.39
R-----	5.34	8.46	13.80	4.48	18.28	20.60	10.51	31.11	.70	31.81	50.09
S-----	2.81	3.23	6.04	1.69	7.73	13.57	6.95	20.52	.52	21.04	28.77
T-----	6.35	17.56	23.91	1.28	25.19	26.88	12.25	39.13	.41	39.54	64.73
U-----	4.87	2.96	7.83	1.25	9.08	12.63	9.17	21.80	.41	22.21	31.29
V-----	2.94	2.19	5.13	1.23	6.36	31.24	6.81	38.05	.30	38.35	44.71
W-----	7.76	6.69	14.45	2.94	17.39	17.44	14.13	31.57	1.56	33.13	50.52
X-----	2.47	2.66	5.13	1.79	6.92	13.57	5.13	18.70	.23	18.93	25.85
Y-----	1.58	3.06	4.64	.51	5.15	9.12	7.41	16.53	.26	16.79	21.94
Average <sup>8</sup> -	4.02	5.51	9.53	1.85	11.38	17.68	8.87	26.55	.55	27.10	38.48
Range:											
Low----	1.58	2.19	4.64	.51	5.15	9.12	5.13	16.53	.23	16.79	21.94
High---	7.76	17.56	23.91	4.48	25.19	31.24	14.13	39.13	1.56	39.54	64.73

Includes association wages or salaries for plant supervision, janitor and watchmen, and maintenance and repair labor.

2. Includes association wages of salaries for plant supervision, janitor and watchmen, and maintenance and repair labor. Includes expenses for heat, utilities, general insurance, taxes (real estate and personal property), maintenance and repair, plant supplies, and miscellaneous plant expenses. Depreciation expense not included.

<sup>3</sup>Not including depreciation expense.

<sup>4</sup>Includes depreciation expense of buildings and plant machinery and equipment.

<sup>5</sup> Includes depreciation expense of buildings and plant machinery.

6. Includes managerial, clerical, itinerant, and salesmen salaries. Includes such non-plant expenses as telephone and telegraph, advertising, auditing, directors' expense, annual meeting, etc. Depreciation expense not included.

7 Includes depreciation expense of office furniture and fixtures and automobile, if any, used for general purposes. Depreciation expense not included.

<sup>a</sup> Unweighted average.





Table 24. - Indirect costs: Percentage distribution of plant, non-plant, and total indirect costs per case of eggs received, 9 Northeastern associations, one low-receipts week, 1950-51

Association	Indirect plant costs				Total	Indirect non-plant costs				Total indirect costs	
	Salaries <sup>1</sup>	Other <sup>2</sup>	Sub-total <sup>3</sup>	Depreciation <sup>4</sup>		Salaries <sup>5</sup>	Other <sup>6</sup>	Sub-total <sup>3</sup>	Depreciation <sup>7</sup>		Total
Percent											
Q-----	7.1	9.9	17.0	5.3	22.3	49.3	26.4	75.7	2.0	77.7	100.0
R-----	10.7	16.9	27.6	8.9	36.5	41.1	21.0	62.1	1.4	63.5	100.0
S-----	9.8	11.2	21.0	5.9	26.9	47.2	24.1	71.3	1.8	73.1	100.0
T-----	9.8	27.1	36.9	2.0	38.9	41.5	18.9	60.4	.7	61.1	100.0
U-----	15.6	9.4	25.0	4.0	29.0	40.4	29.3	69.7	1.3	71.0	100.0
V-----	6.6	4.9	11.5	2.7	14.2	69.9	15.2	85.1	.7	85.8	100.0
W-----	15.4	13.2	28.6	5.8	34.4	34.5	28.0	62.5	3.1	65.6	100.0
X-----	9.6	10.3	19.9	6.9	26.8	52.5	19.8	72.3	.9	73.2	100.0
Y-----	7.2	14.0	21.2	2.3	23.5	41.5	33.8	75.3	1.2	76.5	100.0
Average <sup>8</sup> ----	10.2	13.0	23.2	4.9	28.1	46.4	24.1	70.5	1.4	71.9	100.0
Range:											
Low-----	6.6	4.9	11.5	2.0	14.2	34.5	15.2	60.4	.7	61.1	---
High-----	15.6	27.1	36.9	8.9	38.9	69.9	33.8	85.1	3.1	85.8	---

<sup>1</sup>Includes association wages or salaries for plant supervision, janitor and watchmen, and maintenance and repair labor.

<sup>2</sup>Includes expenses for heat, utilities, general insurance, taxes (real estate and personal property), maintenance and repair, plant supplies, and miscellaneous plant expenses. Depreciation expense not included.

<sup>3</sup>Not including depreciation expense.

<sup>4</sup>Includes depreciation expense of buildings and plant machinery and equipment.

<sup>5</sup>Includes managerial, clerical, fieldmen, and salesmen salaries.

<sup>6</sup>Includes such non-plant expenses as telephone and telegraph, advertising, auditing, directors' expense, annual meeting, etc. Depreciation expense not included.

<sup>7</sup>Includes depreciation expense of office furniture and fixtures and automobile, if any, used for general purposes.

<sup>8</sup>Unweighted average.

Table 25. - Indirect costs: Percentage distribution of plant, non-plant, and total indirect costs per case of eggs received, 9 Northeastern associations, one high-receipts week, 1950-51

Associa- tion	Indirect plant costs				Indirect non-plant costs				Total indirect costs	
	Salaries <sup>1</sup>	Other <sup>2</sup>	Sub- total <sup>3</sup>	Deprecia- tion <sup>4</sup>	Total	Salaries <sup>5</sup>	Other <sup>6</sup>	Sub- total <sup>3</sup>	Deprecia- tion <sup>7</sup>	Total
Percent										
Q-----	6.1	10.6	16.7	5.3	22.0	47.3	28.6	75.9	2.1	78.0
R-----	11.1	17.1	28.2	6.9	35.1	40.9	22.8	63.7	1.2	64.9
S-----	9.6	13.2	22.8	5.6	28.4	44.4	25.6	70.0	1.6	71.6
T-----	11.2	21.6	32.8	2.6	35.4	44.7	19.1	63.8	.8	64.6
U-----	16.1	8.6	24.7	3.8	28.5	46.8	23.6	70.4	1.1	71.5
V-----	7.0	4.7	11.7	2.6	14.3	69.0	16.1	85.1	.6	85.7
W-----	14.0	11.2	25.2	4.9	30.1	40.4	27.7	68.1	1.8	69.9
X-----	10.9	8.6	19.5	6.7	26.2	55.0	17.9	72.9	.9	73.8
Y-----	5.8	15.3	21.1	2.9	24.0	42.9	31.9	74.8	1.2	76.0
Average <sup>8</sup> ----	10.4	13.5	23.9	4.3	28.2	47.9	22.7	70.6	1.2	71.8
Range:										
Low-----	5.8	4.7	11.7	2.6	14.3	40.4	16.1	63.7	.6	64.6
High-----	16.1	21.6	32.8	6.9	35.4	69.0	31.9	85.1	2.1	85.7
										--
										--

<sup>1</sup>Includes association wages or salaries for plant supervision, janitor and watchmen, and maintenance and repair labor.

<sup>2</sup>Includes expenses for heat, utilities, general insurance, taxes (real estate and personal property), maintenance and repair, plant supplies, and miscellaneous plant expenses. Depreciation expense not included.

<sup>3</sup>Not including depreciation expense.

<sup>4</sup>Includes depreciation expense of buildings and plant machinery and equipment.

<sup>5</sup>Includes managerial, clerical, fieldmen, and salesmen salaries.

<sup>6</sup>Includes such non-plant expenses as telephone and telegraph, advertising, auditing, directors' expense, annual meeting, etc. Depreciation expense not included.

<sup>7</sup>Includes depreciation expense of office furniture and fixtures and automobiles and automobiles, if any, used for general purposes.

<sup>8</sup>Unweighted average.



Table 26. - Average direct costs for specified types of egg packs, 9 Northeastern associations, one high receipts week, 1950-51

Direct costs involved <sup>1</sup>	Type of pack				
	Consumer grade, loose	Consumer grade, cartoned	Wholesale grade, loose	Not rehandled, loose	Liquid <sup>2</sup>
<i>Cents per case</i>					
Direct labor:					
Collecting-----	9.7	9.7	9.4	9.2	7.7
Receiving-----	2.7	2.5	2.7	2.7	5.5
Inspecting-----	(3)	(3)	9.6	-	-
Sizing-----	(3)	(3)	-	-	-
Shell cleaning-----	(3)	(3)	-	-	-
Egg breaking-----	-	-	-	-	51.7
Candling-----	45.7	-	-	-	(2)
Cartoning-----	-	40.0	-	-	-
Packing-----	-	6.8	-	-	-
Coopering-----	8.2	6.7	7.0	6.5	7.2
Stacking and holding-----	1.9	1.8	2.0	1.7	(2)
Loading out-----	1.8	1.7	1.8	1.7	(2)
Delivering-----	11.4	10.5	10.0	9.3	(2)
Total-----	81.4	79.7	42.5	31.0	72.1
Packing materials-----	31.7	79.5	37.3	38.3	12.8
Truck <sup>4</sup> -----	17.5	17.0	18.0	15.6	<sup>5</sup> 9.5
Other-----	.6	3.5	(6)	-	-
Total direct costs----	131.2	179.7	97.8	84.9	94.4

Cost figures are averages for the following numbers of associations that packed each type of pack: Consumer grade, loose, 7; consumer grade, cartoned, 8; wholesale grade, loose, 6; not rehandled, loose, 5; and liquid, 1.

<sup>1</sup>Costs for replacing eggs are not included. See discussion of replacement cost on page 34.

<sup>2</sup>No attempt was made in this study to determine costs chargeable to the liquid egg pack for stacking and holding, loading out, delivering, and candling.

<sup>3</sup>Average costs for inspecting, sizing, and shell cleaning were 9.6, 38.5, and 48.1 cents per case, respectively. When any of these services are performed, the cost for them should be included.

<sup>4</sup>Average truck operating expenses of association trucks. Cost or charges of contract trucking are not included. Collecting and delivering costs, including labor, should be charged only to the actual number of cases collected or delivered. See footnote 4, table 27.

<sup>5</sup>Cost of collecting eggs used for liquid purposes but not delivery of liquid eggs.

<sup>6</sup>Less than .05 cent.

a grand total cost of 131.2 cents per case. For purposes of comparison the average total cost and the number of cooperatives that packed each pack are as follows:

Type of pack	Number of associations	Average cost in cents per case <sup>1</sup>
Consumer grade, loose-----	7	131.2
Consumer grade, cartoned-----	8	179.7
Wholesale grade, loose-----	6	97.8
Not rehandled, loose-----	5	84.9
Liquid-----	1	94.4

<sup>1</sup>The cost to replace eggs not fit to be used in their respective packs is not included in these costs but must be considered when these data are used to determine necessary mark-ups. See discussion of replacement cost on page 24.

The procedure as explained above is followed to determine the total direct cost of each pack by individual associations. In the first part of table 27, the direct labor section, only the total direct labor cost by each pack is given. In the three following sections the total cost is shown for packing materials, trucks, and other costs. The total of all direct costs varied widely among associations. For example, in the consumer grade, loose pack the lowest total direct cost is 119.9 cents for association R and the highest, 157.1 cents per case, for association X - a difference of 37.2 cents. Variations in other packs are similar.

To the total direct cost must be added the indirect cost to arrive at the total cost of each pack. In table 28 the indirect cost, both plant and non-plant, is allocated to each pack by 3 different methods as follows: (1) Under method 1 in the same ratio as total direct labor cost of each pack,<sup>8</sup> (2) under method 2 in the same ratio as total direct cost,<sup>9</sup> and (3) under method 3 in same amount irrespective of the type of pack. Another method of allocation would be in relation to the number of labor hours used in each pack.

In table 28, the total direct costs from table 26 have been added to the indirect costs under each method to give a grand total cost per pack. Under method 1, for illustration, it cost an average of 5.93 cents per dozen to pack a dozen of consumer graded, case-packed eggs, 7.52 cents for consumer graded, cartoned eggs, 4.08 cents for wholesale graded, case-packed eggs, 3.42 cents for eggs not rehandled, and 4.53 cents per dozen for liquid eggs.

For consumer grade, loose and for liquid eggs method 1 gives the highest total cost, but for wholesale grade, loose and not rehandled, loose it gives the lowest total cost. For three of the five packs, method 2 gave total costs between those of method 1 and method 3.

<sup>8</sup>Illustration: The average direct labor cost for consumer grade, loose pack eggs is 81.4 cents per case (table 26). This is 132.70 percent of the average total direct labor cost for the 5 packs. This percentage times the total average indirect cost, 35.3 cents (table 28, under method 3), is equal to 46.8 cents per case. The total indirect cost is determined in the same manner for each type of pack by this method.

<sup>9</sup>Under method 2 the same method of calculation as under method 1 was used except that the percentage of average total direct costs (table 26) was applied instead of the percentage of the total direct labor costs.

Table 27. - Total direct costs of specified packs of eggs by specified Northeastern associations, one high receipts week, 1950-51

Direct costs involved by associations <sup>1</sup>	Type of pack				
	Consumer grade, loose	Consumer grade, cartoned	Wholesale-grade, loose	Not rehandled, loose	Liquid <sup>2</sup>
Cents per case					
<b>Direct labor:</b>					
Q <sup>3</sup> -----	78.8	87.2	36.4	-	-
R <sup>3</sup> -----	67.8	73.2	49.9	32.6	72.1
S <sup>3</sup> 4-----	77.2	83.5	45.0	-	-
T-----	101.3	108.5	-	-	-
U <sup>5</sup> -----	-	60.9	33.0	28.5	-
V-----	77.4	83.6	-	34.1	-
W <sup>4</sup> -----	-	71.6	-	23.1	-
X <sup>5</sup> -----	99.8	-	40.4	-	-
Y <sup>4</sup> -----	67.3	69.1	50.4	36.5	-
Average-----	81.4	79.7	42.5	31.0	72.1
<b>Packing materials:</b>					
Q-----	30.8	82.3	30.8	-	-
R-----	31.4	74.5	31.4	31.4	12.8
S-----	29.4	76.7	29.4	-	-
T-----	20.9	68.6	-	-	-
U-----	-	97.5	61.0	61.0	-
V-----	38.6	94.9	-	38.6	-
W-----	-	74.4	-	29.6	-
X-----	39.7	-	39.7	-	-
Y-----	31.1	66.9	31.1	31.1	-
Average-----	31.7	79.5	37.2	38.3	12.8
<b>Truck<sup>4</sup>:</b>					
Q-----	18.2	18.2	18.2	-	69.5
R-----	20.1	20.1	20.1	20.1	-
S <sup>4</sup> -----	18.6	18.6	18.6	-	-
T-----	21.3	21.3	-	-	-
U-----	-	17.0	17.0	17.0	-
V-----	10.6	10.6	-	10.6	-
W <sup>4</sup> -----	-	13.3	-	13.3	-
X-----	17.0	-	17.0	-	-
Y <sup>4</sup> -----	17.0	17.0	17.0	17.0	-
Average-----	17.5	17.0	18.0	15.6	69.5
<b>Other direct costs:</b>					
Q-----	7.8	2.5	0	-	-
R-----	7.6	1.9	0	0	0
S-----	.5	1.3	0	-	-
T-----	.8	1.8	-	-	-
U-----	-	13.3	0	0	-
V-----	.5	1.6	-	0	-
W-----	-	4.7	-	0	-
X-----	7.6	-	0	-	-
Y-----	.3	1.1	.3	0	-
Average-----	.6	3.5	(8)	0	0
<b>Total direct costs:</b>					
Q-----	128.6	190.2	85.4	-	-
R <sup>3</sup> -----	7 119.9	169.7	101.4	84.1	94.4
S <sup>3</sup> 4-----	125.7	180.1	93.0	-	-
T-----	144.3	200.2	-	-	-
U <sup>5</sup> -----	-	188.7	111.0	106.5	-
V-----	127.1	190.7	-	83.3	-
W <sup>4</sup> -----	-	164.0	-	66.0	-
X <sup>5</sup> -----	7 157.1	-	97.1	-	-
Y <sup>4</sup> -----	115.7	154.1	98.8	84.6	-
Average-----	131.2	179.7	97.8	84.9	94.4

<sup>1</sup> Costs for replacing eggs are not included. See discussion of replacement cost on page 34.

<sup>2</sup> No attempt was made in this study to determine costs chargeable to the liquid egg pack for stacking and holding, loading out, delivering and candling.

<sup>3</sup> The coopering cost was not available for associations R and S. However, to make the figures uniform for comparison, the average coopering cost 7.2 cents per case is included.

<sup>4</sup> Contract truckers collected eggs for associations S, U, W, X, and Y and delivered eggs for S and Y, but for these associations it was not possible to separate labor and truck operating expenses. In order to make figures uniform for comparison the contract trucking expense was disregarded and the average labor collecting and delivering cost (9.7 and 10.5 cents per case respectively) of associations which own their trucks is included in direct labor and the average truck operating cost for collecting and delivering (8.6 and 8.4 cents per case respectively) is included in truck cost. See tables 44 and 45 for actual collecting and delivering costs by contract truckers. See also footnote 4, table 26.

<sup>5</sup> Associations U and X did not perform the delivering operation. However, to make figures comparable, the average delivering cost (18.9 cents per case) of associations which own their trucks is included. The average direct labor cost for delivering (10.5 cents per case) is included in Direct labor and the average trucking cost (8.4 cents per case) is included in Truck cost.

<sup>6</sup> Cost of collecting eggs used for liquid purposes but not delivery of liquid eggs.

<sup>7</sup> Associations R and X did not have Other Direct Costs relative to consumer grade, loose pack. However, to make figures uniform for comparison, the average cost (.8 cent per case) is included.

<sup>8</sup> Less than .05 cent.



Table 28. - Average costs of specified types of egg packs with alternate methods of allocating indirect cost, 9 Northeastern associations, one high receipts week, 1950-51

Costs involved <sup>1</sup>	Type of pack				
	Consumer grade, loose	Consumer grade, cartoned	Wholesale grade, loose	Not rehandled, loose	Liquid <sup>2</sup>
	Cents per case				
<b>Method 1</b>					
Indirect plant <sup>3</sup> -----	13.1	12.9	6.9	5.0	11.6
Indirect non-plant <sup>3</sup> ---	33.7	33.0	17.6	12.8	29.9
Total indirect <sup>3</sup> -----	46.8	45.9	24.5	17.8	41.5
Total direct costs (table 26)-----	131.2	179.7	97.8	84.9	94.4
Grand total cost:					
Per 30-dozen case---	178.0	225.6	122.3	102.7	135.9
Per dozen-----	5.93	7.52	4.08	3.42	4.53
<b>Method 2</b>					
Indirect plant <sup>4</sup> -----	11.1	15.1	8.2	7.2	7.9
Indirect non-plant <sup>4</sup> ---	28.3	38.8	21.2	18.3	20.4
Total indirect <sup>4</sup> -----	39.4	53.9	29.4	25.5	28.3
Total direct costs (table 26)-----	131.2	179.7	97.8	84.9	94.4
Grand total cost:					
Per 30-dozen case---	170.6	233.6	127.2	110.4	122.7
Per dozen-----	5.69	7.79	4.24	3.68	4.09
<b>Method 3</b>					
Indirect plant <sup>5</sup> -----	9.9	9.9	9.9	9.9	9.9
Indirect non-plant <sup>5</sup> ---	25.4	25.4	25.4	25.4	25.4
Total indirect <sup>5</sup> -----	35.3	35.3	35.3	35.3	35.3
Total direct costs (table 26)-----	131.2	179.7	97.8	84.9	94.4
Grand total cost:					
Per 30-dozen case	166.5	215.0	133.1	120.2	129.7
Per dozen-----	5.55	7.17	4.44	4.01	4.32

Cost figures are averages for the following numbers of associations that packed each type of pack: Consumer grade, loose, 7; consumer grade, cartoned, 8; wholesale grade, loose, 6; not rehandled, loose, 5; and liquid, 1.

<sup>1</sup>Costs for replacing eggs are not included. See discussion of replacement cost on page 34.

<sup>2</sup>No attempt was made in this study to determine costs chargeable to the liquid egg pack for stacking and holding, loading out, delivering, and candling. See also table 26.

<sup>3</sup>Allocated in same ratio as direct labor cost as shown on table 26.

<sup>4</sup>Allocated in same ratio as total direct costs as shown on table 26.

<sup>5</sup>Allocated equally.

Table 29 is an illustrative table presented to show the procedure that may be followed by an association to determine the total cost for any pack of eggs. In this illustration, method 1, based on total direct labor cost, was used to determine indirect cost.

To determine the direct cost of any specific operation, it is necessary to total the labor, materials, truck, and other costs applicable to the operation (see table 20). To determine the total cost by operations, indirect costs should be added to direct costs. In this report, however, indirect costs have not been allocated to operations and, therefore, only direct costs by operations are shown.

Table 29. - Total cost of specified packs of eggs for association Y, one high receipts week, 1950-51

Costs involved <sup>1</sup>	Type of pack			
	Consumer grade, loose	Consumer grade, cartoned	Wholesale grade, loose	Not rehandled, loose
<b>Direct cost</b>	<i>Cents per case</i>			
Direct labor:				
Collecting <sup>2</sup> -----	9.7	9.7	9.7	9.7
Receiving-----	4.3	4.3	4.3	4.3
Inspecting-----	(3)	(3)	13.9	-
Sizing-----	(3)	(3)	-	-
Shell cleaning---	(3)	(3)	-	-
Candling-----	30.8	-	-	-
Cartoning-----	-	30.0	-	-
Packing-----	-	2.6	-	-
Coopering-----	5.9	5.9	5.9	5.9
Stacking and holding	3.2	3.2	3.2	3.2
Loading out-----	2.9	2.9	2.9	2.9
Delivering <sup>2</sup> -----	10.5	10.5	10.5	10.5
Total direct labor	67.3	69.1	50.4	36.5
Packing materials---	31.1	66.9	31.1	31.1
Truck <sup>2</sup> -----	17.0	17.0	17.0	17.0
Other-----	.3	1.1	.3	-
Total direct cost---	115.7	154.1	98.8	84.6
<b>Indirect cost<sup>4</sup></b> -----				
Plant-----	7.1	7.3	5.3	3.9
Non-plant-----	22.6	23.1	16.9	12.2
Total-----	29.7	30.4	22.2	16.1
<b>Total cost</b>				
Per case-----	145.4	184.5	121.0	100.7
Per dozen-----	4.85	6.15	4.03	3.36

<sup>1</sup>Costs for replacing eggs are not included. See discussion of replacement cost on page 34.

<sup>2</sup>Contract truckers collected and delivered eggs in which it was not possible to separate labor and truck operating expenses. In order to make figures uniform for comparison the contract trucking expense was disregarded and the average labor collecting and delivering cost (9.7 and 10.5 cents per case respectively) of associations which own their trucks is included in direct labor and the average truck operating cost for collecting and delivering (8.6 and 8.4 cents per case respectively) is included in truck cost. See tables 44 and 45 for actual collecting and delivering costs by contract truckers. See also footnote 4, table 28.

<sup>3</sup>Costs for inspecting, sizing when performed as a separate operation, and shell cleaning must be included in the particular pack concerned when such services are performed.

<sup>4</sup>Indirect costs are allocated to each pack in the same ratio as total direct labor cost, method 1. Method of calculation: The average direct labor cost of the 4 packs of eggs is 55.825 cents per case. The direct labor cost of the consumer grade, loose pack is 67.3 cents. This is 120.56 percent of the average. This percentage times the indirect costs as shown on table 23 (plant 5.9 cents, non-plant 18.7 cents, and total 24.6 cents) is equal to 7.1, 22.6 and 29.7 cents respectively. The same procedure is followed for the other 3 packs of eggs.

## Replacement Cost

No attempt was made in this report to show the additional cost of candling and of cartonning resulting from the replacement of eggs of a quality unfit for these type packs. This cost will vary widely from association to association and is chiefly dependent upon quality standards and policies which are not within the scope of this study.

## OUTPUT PER MAN-HOUR

Case output per man-hour is usually a more reliable measure of labor efficiency than labor unit costs because wage rates and amount of overtime work vary among plants. Generally, the rate of pay for overtime work at the associations studied was one and one-half times the regular labor rate.

## BY OPERATIONS

Case output per man-hour by operations is given in summary form in table 30. This table shows a wide range of output among the operations. For example, the receiving, stacking and holding, and loading out

Table 30. - Summary of output per man-hour of labor for various egg handling operations, 9 Northeastern associations, two 1-week periods, 1950-51

Operation	Associations performing operation		Output per man-hour of labor <sup>1</sup>		
	Low receipts week	High receipts week	Low receipts week	High receipts week	Average <sup>2</sup>
	Number		Cases		
Collecting-----	3	3	10.0	10.8	10.4
Receiving-----	9	9	74.3	70.7	72.5
Inspecting-----	6	6	18.0	18.2	18.1
Sizing-----	2	2	4.2	3.4	3.8
Shell cleaning-----	0	1	-	4.4	-
Egg breaking-----	1	1	1.6	1.8	1.7
Candling-----	7	7	2.3	2.3	2.3
Cartonning-----	8	8	2.5	2.6	2.5
Packing-----	8	8	24.0	18.5	21.2
Coopering-----	4	5	19.8	20.2	19.8
Stacking and holding-----	9	9	68.3	77.0	72.6
Loading out-----	9	9	66.8	78.3	72.5
Delivering-----	4	5	14.9	17.5	16.6

<sup>1</sup>Figures taken from tables 31 to 43.

<sup>2</sup>Unweighted average.



operations had the largest output per man-hour with an average of 73 cases during the two periods. On the other hand, the average egg breaking output was only 1.7 cases. Obviously, this is because egg breaking takes much more labor than the three operations mentioned.

#### BY ASSOCIATIONS

Case output per man-hour of labor for the low and the high receipts week is given by associations for each operation in tables 31 to 43. These tables make it possible to compare labor efficiency among plants by operations. For example, in the cartoning operation during the high receipts week (table 38) plant U was the most efficient with 3.5 cases per man-hour and plant Q the least efficient with only 1.9 cases. Other operations show similarly wide variations - thereby indicating that opportunities exist for increased labor efficiency in many or all of the plants in one or more operations.

Table 31 . - *Collecting eggs from farms: Output per man-hour of labor of 3 Northeastern associations, two 1-week periods, 1950-51*<sup>1</sup>

Associations performing operation	Output per man-hour of labor		
	Low receipts week	High receipts week	Average <sup>2</sup>
	<i>Cases per hour</i>		
Q-----	10.4	10.6	10.5
R-----	10.4	11.4	10.9
T-----	9.2	10.5	9.9
V <sup>3</sup> -----	-	-	-
Average <sup>2</sup>	10.0	10.8	10.4
Range:			
Low-----	9.2	10.5	9.9
High-----	10.4	11.4	10.9

<sup>1</sup>Does not include contract hauling.

<sup>2</sup>Unweighted average.

<sup>3</sup>Useable data not available.

Table 32. - *Receiving eggs: Output per man-hour of labor of 9 Northeastern associations, two 1-week periods, 1950-51*

Associations performing operation	Output per man-hour of labor		
	Low receipts week	High receipts week	Average <sup>1</sup>
	<i>Cases</i>		
Q-----	47.8	73.4	60.6
R-----	38.2	20.4	29.3
S-----	122.5	71.1	96.8
T-----	49.8	38.1	43.9
U-----	67.7	74.9	71.3
V-----	192.2	191.1	191.7
W-----	62.3	84.3	73.3
X-----	65.6	57.9	61.7
Y-----	23.0	25.2	24.1
Average <sup>1</sup>	74.3	70.7	72.5
Range:			
Low-----	23.0	20.4	24.1
High-----	192.2	191.1	191.7

<sup>1</sup>Unweighted average.

Table 33. - *Inspecting eggs: Output per man-hour of labor of 7 Northeastern associations, two 1-week periods, 1950-51*

Associations performing operation	Output per man-hour of labor		
	Low receipts week	High receipts week	Average <sup>1</sup>
	<i>Cases</i>		
Q-----	13.4	12.0	12.7
R-----	6.8	6.6	6.7
S-----	12.0	11.7	11.9
U-----	15.0	18.7	16.8
W <sup>2</sup> -----	26.7	20.0	23.4
X-----	52.7	53.6	53.1
Y-----	8.3	6.3	7.3
Average <sup>3</sup> -----	18.0	18.2	18.1
Range:			
Low-----	6.8	6.3	6.7
High-----	52.7	53.6	53.1

<sup>1</sup>Unweighted average

<sup>2</sup>Not included in average or range because of small volume inspected. See also table 7.

<sup>3</sup>Unweighted average excluding Association W.

Table 34. - *Sizing eggs: Output per man-hour of labor of 2 Northeastern associations, two 1-week periods, 1950-51*

Associations performing operation	Output per man-hour of labor		
	Low receipts week	High receipts week	Average <sup>1</sup>
	<i>Cases</i>		
W-----	5.8	4.6	5.2
X-----	2.5	2.2	2.4
Average <sup>1</sup> -----	4.2	3.4	3.8
Range:			
Low-----	2.5	2.2	2.4
High-----	5.8	4.6	5.2

<sup>1</sup>Unweighted average.

Table 35. - *Shell cleaning eggs: Output per man-hour of labor of 1 Northeastern association, two 1-week periods, 1950-51*

Association performing operation	Output per man-hour of labor		
	Low receipts week	High receipts week	Average
	<i>Cases</i>		
W-----	-	4.4	-

Table 36. - *Egg breaking: Output per man-hour of labor of 1 Northeastern association, two 1-week periods, 1950-51*

Association performing operation	Output per man-hour of labor		
	Low receipts week	High receipts week	Average <sup>1</sup>
	<i>Cases</i>		
R-----	1.6	1.8	1.7

<sup>1</sup>Unweighted average



Table 37. - *Candling eggs: Output per man-hour of labor of 9 Northeastern associations, two 1-week periods, 1950-51*

Associations performing operation	Output per man-hour of labor		
	Low receipts week	High receipts week	Average <sup>1</sup>
	<i>Cases</i>		
Q-----	2.4	1.9	2.2
R-----	2.4	2.6	2.5
S-----	2.6	2.4	2.5
T-----	1.5	1.9	1.7
U <sup>2</sup> -----	4.0	2.6	3.3
V-----	2.3	2.5	2.4
W <sup>2</sup> -----	3.6	3.5	3.6
X-----	1.8	1.9	1.8
Y-----	2.9	2.9	2.9
Average <sup>3</sup> -----	2.3	2.3	2.3
Range:			
Low-----	1.5	1.9	1.7
High-----	2.9	2.9	2.9

<sup>1</sup>Unweighted average.<sup>2</sup>Not included in average or range because of small volume candled. See also table 11.<sup>3</sup>Unweighted average excluding Associations U and W.Table 38. - *Cartoning eggs: Output per man-hour of labor of 9 Northeastern associations, two 1-week periods, 1950-51*

Associations performing operation	Output per man-hour of labor		
	Low receipts week	High receipts week	Average <sup>1</sup>
	<i>Cases</i>		
Q-----	2.0	1.9	1.9
R-----	2.4	2.5	2.5
S-----	2.7	2.6	2.6
T-----	1.5	2.0	1.7
U-----	3.8	3.5	3.7
V-----	2.4	2.3	2.3
W-----	2.7	2.9	2.8
X <sup>2</sup> -----	1.8	1.6	1.7
Y-----	2.4	2.9	2.6
Average <sup>3</sup> -----	2.5	2.6	2.5
Range:			
Low-----	1.5	1.9	1.7
High-----	3.8	3.5	3.7

<sup>1</sup>Unweighted average<sup>2</sup>Not included in average or range because of small volume cartoned. See also table 12.<sup>3</sup>Unweighted average excluding Association X.

Table 39. - *Packing cartoned eggs: Output per man-hour of labor of 9 Northeastern associations, two 1-week periods, 1950-51*

Associations performing operation	Output per man-hour of labor		
	Low receipts week	High receipts week	Average <sup>1</sup>
	<i>Cases</i>		
Q-----	8.9	9.5	9.2
R-----	31.1	15.2	23.2
S-----	19.3	12.8	16.0
T-----	22.4	10.7	16.6
U-----	14.0	18.4	16.2
V-----	26.0	20.1	23.0
W-----	31.5	30.4	30.9
X <sup>2</sup> -----	6.8	11.2	9.0
Y-----	38.8	30.8	34.8
Average <sup>3</sup> -----	24.0	18.5	21.2
Range:			
Low-----	8.9	9.5	9.2
High-----	38.8	30.8	34.8

<sup>1</sup>Unweighted average

<sup>2</sup>Not included in average or range because of small volume packed. See also table 13.

<sup>3</sup>Unweighted average excluding Association X.

Table 40. - *Coopering egg cases: Output per man-hour of labor of 5 Northeastern associations, two 1-week periods, 1950-51*

Associations performing operation <sup>1</sup>	Output per man-hour of labor		
	Low receipts week	High receipts week	Average <sup>2</sup>
	<i>Cases</i>		
Q-----	17.3	11.8	14.6
T-----	(1)	22.2	-
U-----	32.9	31.9	32.4
W-----	22.5	26.2	24.3
X-----	6.3	9.0	7.7
Average <sup>3</sup> -----	19.8	20.2	19.8
Range:			
Low-----	6.3	9.0	7.7
High-----	32.9	31.9	32.4

<sup>1</sup>Association R, S, V, and Y, and T during low receipts week performed coopering operation but satisfactory output data were not available.

<sup>2</sup>Unweighted average.

<sup>3</sup>Unweighted average of vertical column.

Table 41. - *Stacking eggs in holding rooms: Output per man-hour of labor of 9 Northeastern associations, two 1-week periods, 1950-51*

Associations performing operation	Output per man-hour of labor		
	Low receipts week	High receipts week	Average <sup>1</sup>
	<i>Cases</i>		
Q-----	81.8	55.2	68.5
R-----	35.2	90.1	62.7
S-----	72.7	73.3	73.0
T-----	30.4	42.8	36.6
U-----	41.6	42.2	41.9
V-----	42.4	94.5	68.4
W-----	178.8	211.7	195.2
X-----	81.9	50.8	66.6
Y-----	49.5	32.4	40.9
Average <sup>1</sup> -----	68.3	77.0	72.6
Range:			
Low-----	30.4	32.4	36.6
High-----	178.8	211.7	195.2

<sup>1</sup>Unweighted averageTable 42. - *Loading out eggs: Output per man-hour of labor of 9 Northeastern associations, two 1-week periods, 1950-51*

Associations performing operation	Output per man-hour of labor		
	Low receipts week	High receipts week	Average <sup>1</sup>
	<i>Cases</i>		
Q-----	42.1	77.6	59.8
R-----	70.5	156.7	113.6
S-----	68.0	63.6	65.8
T-----	72.6	54.0	63.3
U-----	37.4	51.7	44.6
V-----	89.9	94.0	91.9
W-----	82.9	107.2	95.1
X-----	81.9	58.1	70.0
Y-----	55.5	42.2	48.8
Average <sup>1</sup> -----	66.8	78.3	72.5
Range:			
Low-----	37.4	42.2	44.6
High-----	89.9	156.7	113.6

<sup>1</sup>Unweighted average.Table 43. - *Delivering eggs to buyers: Output per man-hour of labor of 5 Northeastern associations, two 1-week periods, 1950-51<sup>1</sup>*

Associations performing operation	Output per man-hour of labor		
	Low receipts week	High receipts week	Average <sup>2</sup>
	<i>Cases</i>		
Q-----	22.2	17.5	19.8
R-----	12.2	10.0	11.1
S-----	(3)	14.0	-
T-----	10.0	6.8	8.4
V <sup>3</sup> -----	-	-	-
W-----	15.0	39.2	27.1
Average <sup>4</sup> -----	14.9	17.5	16.6
Range:			
Low-----	10.0	6.8	8.4
High-----	22.2	39.2	27.1

<sup>1</sup>Does not include contract hauling.<sup>2</sup>Unweighted average.<sup>3</sup>Useable data not available.<sup>4</sup>Unweighted average of vertical column.



Table 44. - Collecting eggs from farms: Direct costs and eggs collected, 9 Northeastern associations, two 1-week periods, 1950-51

Associations performing operation	Collecting costs					Eggs collected		
	Association trucks			Contract trucks	Total	Association trucks	Contract trucks	Total
	Direct labor	Truck operating	Total					
	Cents per case					Cases		
<u>Low receipts week</u>								
Q-----	10.2	10.0	20.2	-	20.2	1,005	-	1,005
R-----	11.1	15.9	27.0	-	27.0	1,915	-	1,915
S-----	-	-	-	22.7	22.7	-	5,545	5,545
T-----	14.5	9.9	24.4	-	24.4	1,159	-	1,159
U-----	-	-	-	32.7	32.7	-	1,374	1,374
V-----	9.7	3.7	13.4	-	13.4	3,291	-	3,291
W-----	-	-	-	37.3	37.3	-	573	573
X-----	-	-	-	18.9	18.9	-	527	527
Y-----	-	-	-	26.4	26.4	-	3,008	3,008
Average <sup>1</sup> -----	11.4	9.9	21.3	27.6	24.8	1,842	2,205	2,044
Range:								
Low-----	9.7	3.7	13.4	18.9	13.4	1,005	527	527
High-----	14.5	15.9	27.0	37.3	37.3	3,291	5,545	5,545
<u>High receipts week</u>								
Q-----	9.9	10.0	19.9	35.7	<sup>2</sup> 29.3	1,015	1,477	2,492
R-----	7.7	9.5	17.2	-	17.2	2,260	-	2,260
S-----	-	-	-	25.3	25.3	-	5,796	5,796
T-----	12.1	11.5	23.6	-	23.6	1,036	-	1,036
U-----	-	-	-	31.4	31.4	-	1,363	1,363
V-----	9.1	3.5	12.6	-	12.6	4,032	-	4,032
W-----	-	-	-	25.8	25.8	-	740	740
X-----	-	-	-	19.6	19.6	-	1,267	1,267
Y-----	-	-	-	26.3	26.3	-	3,135	3,135
Average <sup>1</sup> -----	9.7	8.6	18.3	27.4	23.5	2,086	2,296	2,458
Range:								
Low-----	7.7	3.5	12.6	19.6	12.6	1,015	740	740
High-----	12.1	11.5	23.6	35.7	31.4	4,032	5,796	5,796

<sup>1</sup>Unweighted average of vertical column.

<sup>2</sup>Weighted average of figures for association and contract trucks.

Table 45. - *Delivering eggs to buyers: Direct costs and eggs delivered, 7 Northeastern associations, two 1-week periods, 1950-51.*

Associations performing operation	Delivering costs					Eggs delivered		
	Association trucks			Contract trucks	Total	Association trucks	Contract trucks	Total
	Direct labor	Truck operating	Total					
	Cents per case					Cases		
<u>Low receipts week</u>								
Q-----	4.9	7.5	12.4	25.8	<sup>1</sup> 14.9	1,578	348	1,926
R-----	10.5	8.4	18.9	-	18.9	1,714	-	1,714
S <sup>2</sup> -----	-	-	-	-	-	-	-	-
T-----	13.3	6.9	20.2	-	20.2	2,000	-	2,000
V-----	11.6	7.1	18.7	-	18.7	3,596	-	3,596
W-----	8.6	6.8	15.4	-	15.4	430	-	430
Y-----	-	-	-	18.3	18.3	-	3,693	3,693
Average <sup>3</sup> -----	9.8	7.3	17.1	22.0	17.7	1,864	2,020	2,226
Range:								
Low-----	4.9	6.8	12.4	18.3	14.9	430	348	430
High-----	13.3	8.4	20.2	25.8	20.2	3,596	3,693	3,693
<u>High receipts week</u>								
Q-----	6.8	8.2	15.0	-	15.0	1,981	-	1,981
R-----	10.4	10.6	21.0	-	21.0	2,059	-	2,059
S-----	11.4	10.0	21.4	26.4	<sup>1</sup> 26.3	49	4,673	4,722
T-----	19.4	9.8	29.2	-	29.2	1,391	-	1,391
V-----	10.7	7.1	17.8	-	17.8	4,318	-	4,318
W-----	4.3	4.7	9.0	-	9.0	1,058	-	1,058
Y-----	-	-	-	19.4	19.4	-	3,404	3,404
Average <sup>3</sup> -----	10.5	8.4	18.9	22.9	19.7	1,809	4,038	2,705
Range:								
Low-----	4.3	4.7	9.0	19.4	9.0	49	3,404	1,058
High-----	19.4	10.6	29.2	26.4	29.2	4,318	4,673	4,722

<sup>1</sup>Weighted average of figures for association and contract truck.<sup>2</sup>Data not obtained.<sup>3</sup>Unweighted average of vertical column.





